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OC-054 - (23967) - ENHANCING NEUROANATOMY EDUCATION THROUGH MULTIMODAL STRATEGIES: INTEGRATING 3D-PRINTED AND AUGMENTED REALITY MODELS WITH CADAVER DISSECTIONS

S.M. Silva (Portugal)[1]; M. Arantes (Portugal)[1]; S.I. Sá (Portugal)[1]; J.P. Andrade (Portugal)[1]

1 - Unit of Anatomy, Department of Biomedicine, Faculty of Medicine, University of Porto

Susana Maria Silva
Porto

Mavilde Arantes
Porto

Susana Isabel Sá
Porto

José Paulo Andrade
Porto

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Traditional approaches to neuroanatomy education often struggle to convey the complex spatial relationships inherent in the brain's structure. Innovative tools such as 3D-printed models and augmented reality (AR) have emerged as effective complements, offering enhanced visualization, interactivity, and engagement for medical students.

This study explored the educational value of integrating 3D-printed and AR models with cadaver dissections in neuroanatomy teaching. Second-year medical students participated in hands-on sessions using high-resolution 3D-printed brain models created from two-dimensional axial imaging, AR applications for interactive exploration, and cadaver brain sections for tactile learning. A five-item Likert-type survey was used to assess students' subjective responses to the multimodal learning experience.

Students overwhelmingly rated their experiences with both technologies as highly positive. They reported a significantly improved understanding of brain anatomy, particularly in grasping spatial organization and connectivity. The opportunity to interact with both virtual and physical models, along with traditional dissections, enhanced critical thinking, engagement, and long-term knowledge retention.

The combination of 3D-printed models, AR applications, and cadaver dissections creates a rich, multimodal educational environment that bridges theoretical concepts with practical application. This approach accommodates diverse learning styles and fosters deeper anatomical understanding. Students benefit from repeated virtual explorations, physical manipulation, and real anatomical context, promoting confidence and competence in neuroanatomy.

Supported by the University of Porto's Pedagogical Excellence Award, this model represents an effective strategy to elevate medical education through pedagogical innovation and the integration of new technologies.

Palavras-chave : Neuroanatomy, Augmented Reality, 3D-printed Models